

LONDON- WEST MIDLANDS ENVIRONMENTAL STATEMENT

Volume 5 | Technical Appendices

CFA6 | South Ruislip to Ickenham
Data appendix (AG-001-006)
Agriculture, forestry and soils

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Department
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1 Introduction

- 1.1.1 The agriculture, forestry and soils appendix for the South Ruislip to Ickenham community forum area (CFA6) comprises:
- soils and Agricultural Land Classification (ALC) surveys (Section 2);
 - forestry (Section 3); and
 - farm impact assessment summaries (Section 4).
- 1.1.2 Maps referred to throughout the agriculture, forestry and soils appendix are contained in the Volume 5, Agriculture, Forestry and Soils Map Book.

2 Soils and Agricultural Land Classification surveys

2.1 Background

- 2.1.1 The agricultural baseline data has been derived from both desk study and site investigation. Information gathered by the desk study has related primarily to the identification of soil resources in the study area, the associated physical characteristics of geology, topography and climate which underpin the assessment of agricultural land quality, and the disposition of land uses. The main sources of information have included:
- National Soil Map¹;
 - Soils and Their Use in South East England²;
 - solid and superficial deposits from the Geology of Britain viewer³;
 - gridpoint meteorological data for Agricultural Land Classification of England and Wales⁴;
 - Provisional Agricultural Land Classification of England and Wales (1:250,000)⁵;
 - Likelihood of Best and Most Versatile Agricultural Land (1:250,000)⁶;
 - agri-environment schemes⁷;
 - computer-aided light detection and ranging (LiDAR) elevation data for determination of gradient;
 - aerial photography; and
 - on-site soil and ALC surveys.
- 2.1.2 Where the collection of agricultural site information has enabled a review/refinement of published information, this was undertaken in accordance with the methodology prescribed by the Ministry of Agriculture, Fisheries and Food (MAFF)⁸.
- 2.1.3 Engagement with landowners and tenants between May 2012 and June 2013 has established the nature and extent of agricultural, forestry and related rural enterprises. Information obtained from farm impact assessment interview surveys has been taken as a

¹ Cranfield University (2001), *The National Soil Map of England and Wales 1:250,000 scale*.

² Soil Survey of England and Wales (1984), *Soils and Their Use in South East England*.

³ British Geological Survey, <http://bgs.ac.uk/geologyofbritain/home/html>: Accessed on 18 March 2013

⁴ Meteorological Office (1989), *Gridpoint Meteorological data for Agricultural Land Classification of England and Wales and other Climatological Investigations*.

⁵ Ministry of Agriculture, Fisheries and Food (MAFF) (1983), *Agricultural Land Classification of England and Wales (1:250,000)*.

⁶ Department for Environment, Food and Rural Affairs (Defra) (2005), *Likelihood of Best and Most Versatile Agricultural Land (1:250,000)*.

⁷ Multi-Agency Geographical Information for the Countryside (MAGIC) available on line @ www.magic.gov.uk, accessed August 2013

⁸ MAFF (1988), *Agricultural Land Classification of England and Wales – Revised guidelines and criteria for grading the quality of agricultural land*.

factual representation of local agricultural and forestry interests and has not been subject to further evaluation.

2.2 Soils and land resources

2.2.1 The location and extent of soil types displaying different characteristics and of agricultural land in the different ALC grades are influenced by topography, drainage, geology and soil parent material, which are described in turn below. This section then provides a description and distribution of the main soil types encountered along the study corridor. The main soil and land use interactions are then evaluated and include agricultural land quality and other key soil interactions along the route within this study area.

2.2.2 The only agricultural land subject to a soil survey was at Gatemead Farm (Holding CFAo6/3) surveyed in October 2012.

Topography and drainage

2.2.3 The eastern end of the study area is generally flat at around 40m above Ordnance Datum (AOD) with hills around Newyears Green rising to around 70m AOD and to around 80m at Bayhurst Wood Country Park.

2.2.4 The main drainage features are the Yeading Brook and the River Pinn which run north to south through the area. The majority of other drainage is controlled and culverted due to the urban nature of the study area.

Geology and soil parent materials

2.2.5 The principal underlying geology mapped by the British Geological Survey (BGS) is that of London Clay which comprises fine sandy silty clay or silty clay of marine origin. There are intrusions of the Lambeth Group into the study area associated with the Yeading Brook and tributaries of the River Pinn. This is typically developed in estuarine environments and comprises sedimentary sandy clay and clayey sand. The Lambeth Group is underlain by Cretaceous Chalk in this study area. In areas underlying the tributaries of the River Pinn superficial deposits of alluvium are also mapped.

2.2.6 A list of geological strata occurring within the study area is provided in age order in Table 1 and shown on Map WR-02-005 (Volume 5, Water Resources Map Book).

Table 1: Bedrock and soil forming materials

Formation	Composition/soil parent material
Lambeth Group	Fine grained sands, silts and clays with localised pebble beds
London Clay	Fine, sandy, silty clay. Glauconitic at base
Superficial deposits	
Alluvium	Compressible silty clay, (silt, sand and gravel)

Description and distribution of soil types

- 2.2.7 The soil characteristics are described by the Soil Survey of England and Wales² that accompanies the National Soil Map¹. The soils are grouped into soil associations of a range of soil types (soil series) showing similar characteristics.
- 2.2.8 The soils mapped in the east of the study area are of the Windsor association, which are stoneless, clayey and slowly permeable. Windsor soils (described in Table 2) remain waterlogged for much of the year and are commonly assessed as being of Wetness Class⁹ (WC) IV. To the west Wickham 4 association soils are mapped which have fine loamy or silty topsoils over clay. Wickham 4 soils are also waterlogged for long periods throughout the year and are of WC IV.
- 2.2.9 Typical soil profiles are set out in Table 2. The references to soil colours are derived from a standard Munsell Soil Colour Chart¹⁰.

Table 2: Descriptions of the dominant soil series of the Windsor and Wickham soil associations

Windsor series	Wickham series
0cm-20cm depth, dark grey, slightly stony clay loam or clay	0cm-22cm, dark greyish brown (10YR4/2) ¹¹ very slightly stony silty clay loam with few fine greyish brown mottles; medium subangular and tabular chert; moist; moderately developed medium subangular blocky; medium packing density; moderately firm soil strength; many very firm fibrous roots; non calcareous; clear wavy boundary
20cm-65cm, light brownish grey with many ochreous mottles, stoneless clay; moderate coarse prismatic structure	22cm-45cm, brown (10YR5/3) slightly stony silty clay loam with many fine string brown mottles; medium subrounded and tabular chert; very moist; weakly developed; adherent coarse subangular blocky with light brownish grey faces; medium packing density; moderately firm soil ped strength; common very fine fibrous roots; non-calcareous; few rounded ferruginous concretions; gradual wavy boundary
65cm-100cm, brown, slightly mottled stoneless clay; massive structure; many fine manganiferous concretions	45cm-65cm, light grey slightly stony silty clay with many fine strong brown mottles; medium subangular and tabular chert; very moist; weakly developed, adherent medium prismatic; high packing density; moderately firm soil and ped strength; few fine fibrous roots; very slightly calcareous; gradual wavy boundary
	65cm-110cm, light grey to grey stoneless silty clay with many fine strong brown mottles; moist; weakly developed, adherent coarse prismatic; high packing density; very firm soil and ped strength; very slightly calcareous

⁹ The Wetness Class of a soil is classified according to the depth and duration of waterlogging in the soil profile and has six bands.

¹⁰ Munsell Color Charts (2000), *Munsell Color Charts*, Grand Rapids, MI, USA.

¹¹ Munsell colour notation describes colour by three attributes: hue (with five principle colours - red (R), yellow (Y), green (G), blue (B), and purple (P) with a preceding intermediate value 2.5-10; value or brightness where zero is black (most dark) and ten is white (most light); and chroma that distinguishes the difference from a pure hue to a gray shade.

2.3 Soil and land use interactions

Agricultural land quality

- 2.3.1 A review of background ALC information has been undertaken to ascertain the land quality within the study area. The review also sought to identify the extent of existing detailed post-1988 ALC information to ensure that surveys were not repeated unnecessarily.
- 2.3.2 No detailed post-1988 ALC data is available within this study area. It was therefore considered appropriate for a survey to be conducted at Gatemead Farm, Harefield as it was considered that results from this survey would be representative of the surrounding agricultural land. Permission to survey other areas was not granted.

Detailed Agricultural Land Classification survey - Gatemead Farm

- 2.3.3 At the time of survey the land at Gatemead Farm (CFA06/3) was grassland being grazed by cattle.
- 2.3.4 Soil profiles were examined using an Edelman (Dutch) auger and spade and approximately one observation was made for each 100m linear run of the Proposed Scheme. At each observation point the following characteristics were assessed for each soil horizon up to a maximum of 120cm or any impenetrable layer:
- soil texture;
 - significant stoniness;
 - colour (including local gley and mottle colours);
 - consistency;
 - structural condition;
 - free carbonate; and
 - depth.
- 2.3.5 Soil WC was inferred from the matrix colour, presence or absence of, and depth to, greyish and ochreous gley mottling and/or poorly permeable subsoil layers at least 15cm thick. Soil droughtiness was investigated by the calculation of moisture balance equations. Crop-adjusted available profile water is estimated from texture, stoniness and depth and then compared to a calculated moisture deficit for wheat and potatoes. The moisture deficit is a function of potential evapotranspiration and rainfall. Grading of the land can be affected if available water is insufficient to balance moisture deficit and droughtiness occurs. When a profile is found with significant stoniness, sufficient to prevent penetration of a hand auger, then it is assumed for the purposes of calculating droughtiness that similar levels of stoniness continue to the full 1.2m depth considered. The methodology and calculation used to determine the severity of a droughtiness limitation is given in Figure 1

Figure 1: Methodology for calculating the severity of a droughtiness limitation to Agricultural Land Classification grading¹²

$$AP \text{ wheat (mm)} = \frac{TA_{vt} \times LT_t + \sum (TA_{vs} \times LT_{50}) + \sum (EA_{vs} \times LT_{50-120})}{10}$$

where

TA_{vt} is Total available water (TA_v) for the topsoil texture

TA_{vs} is Total available water (TA_v) for each subsoil layer

EA_{vs} is Easily available water (EA_v) for each subsoil layer

LT_t is thickness (cm) of topsoil layer

LT_{50} is thickness (cm) of each subsoil layer to 50 cm depth

LT_{50-120} is thickness (cm) of each subsoil layer between 50 and 120 cm depth

Σ means 'sum of'.

$$AP \text{ potatoes (mm)} = \frac{TA_{vt} \times LT_t + \sum (TA_{vs} \times LT_{70})}{10}$$

where

LT_{70} is thickness (cm) of each subsoil layer to 70 cm depth

MB (Wheat) = AP (Wheat) - MD (Wheat)

MB (Potatoes) = AP (Potatoes) - MD (Potatoes)

Where

MB is the Moisture Balance

AP is the Crop-adjusted available water capacity

MD is the moisture deficit, as determined by the agro-climatic assessment.

Table 8 Grade according to droughtiness

Grade/ Subgrade	Moisture Balance limits (mm)		
	<i>wheat</i>		<i>potatoes</i>
1	+30	<i>and</i>	+10
2	+5	<i>and</i>	-10
3a	-20	<i>and</i>	-30
3b	-50	<i>and</i>	-55
4	<-50	<i>or</i>	<-55

¹² Derived from: MAFF (1988), *Agricultural Land Classification of England and Wales – Revised guidelines and criteria for grading the quality of agricultural land*.

- 2.3.6 Agro-climatic data at Gatemead Farm (Table 3) shows the site to have moderate rainfall and warm temperatures. Moisture deficits are moderate to moderately large. The number of Field Capacity Days (FCD) is smaller than the average for lowland England and is considered to be favourable for agricultural land work.

Table 3: Agro-climatic data for Gatemead Farm

Climatic parameter	Measurement
Altitude (AOD)	45m
Average annual rainfall	686mm
Accumulated temperature above 0°C	1,458 day°C
Field capacity days	143 days
Average moisture deficit, wheat	110mm
Average moisture deficit, potatoes	104mm

- 2.3.7 The soils found during the survey generally correlate well with those mapped and are described in Table 4. Topsoil is of heavy silty clay loam or clay and displays evidence of wetness in the form of ochreous mottling. Topsoil is non-calcareous and is 25cm to 30cm in thickness.

- 2.3.8 Below this topsoil was clay subsoil which was mottled and gleyed. A slowly permeable layer was also present in some areas which resulted in a WC IV allocation. Inconsistent with the soils described as being present were those found with relatively shallow profiles becoming impenetrable to auger at 35cm to 45cm depth (although this is not to say that the profile would also be impenetrable to plant roots at this depth).

Table 4: Soil profile description from Gatemead Farm

Survey results from Gatemead Farm (CFAo6/3)
0cm-30cm, dark brown (10YR3/3), heavy silty clay loam; common medium distinct ochreous mottle from 25cm; non-calcareous
30cm-35cm, brown (10YR4/3), clay with common coarse distinct ochreous mottles; few medium, hard, ferri-manganiferous concretions
Soil impenetrable below 35cm due to stones

- 2.3.9 The limited depth of the profiles assessed results in the assessment that this land is Subgrade 3b. Where the slowly permeable subsoil layer was found in combination with heavy silty clay loam topsoil texture this also resulted in a wetness and workability limitation to Subgrade 3b, as shown in Figure 2.

Figure 2: Agricultural Land Classification grade according to soil wetness¹³

Wetness Class	Texture ¹ of the top 25 cm	Field Capacity Days				
		<126	126-150	151-175	176-225	>225
I	S ² LS ³ SL SZL	1	1	1	1	2
	ZL MZCL MCL SCL	1	1	1	2	3a
	HZCL HCL	2	2	2	3a	3b
	SC ZC C	3a(2)	3a(2)	3a	3b	3b
II	S ² LS ³ SL SZL	1	1	1	2	3a
	ZL MZCL MCL SCL	2	2	2	3a	3b
	HZCL HCL	3a(2)	3a(2)	3a	3a	3b
	SC ZC C	3a(2)	3b(3a)	3b	3b	3b
III	S ² LS SL SZL	2	2	2	3a	3b
	ZL MZCL MCL SCL	3a(2)	3a(2)	3a	3a	3b
	HZCL HCL	3b(3a)	3b(3a)	3b	3b	4
	SC ZC C	3b(3a)	3b(3a)	3b	4	4
IV	S ² LS SL SZL	3a	3a	3a	3b	3b
	ZL MZCL MCL SCL	3b	3b	3b	3b	3b
	HZCL HCL	3b	3b	3b	4	4
	SC ZC C	3b	3b	3b	4	5
V	S LS SL SZL	4	4	4	4	4
	ZL MZCL MCL SCL	4	4	4	4	4
	HZCL HCL	4	4	4	4	4
	SC ZC C	4	4	4	5	5
Soils in Wetness Class VI - Grade 5						

¹ For naturally calcareous soils with more than 1% CaCO₃ and between 18% and 50% clay in the top 25 cm. the grade, where different from that of other soils, is shown in brackets

² Sand is not eligible for Grades 1, 2 or 3a

³ Loamy sand is not eligible for Grade 1

Where: S = sand, Z = silt, C = clay, L = loamy and P = peat.

For sand the coarseness of the grain is sub-divided into coarse (c), medium (m) and fine (f). The subdivisions of clay loam and silty clay loam classes are indicated as medium (M) (less than 27% clay); heavy (H) (27-35% clay).

The average number of FCD in the South Ruislip to Ickenham area is 145 and shown in the highlighted column.

¹³ Derived from: MAFF (1988), *Agricultural Land Classification of England and Wales – Revised guidelines and criteria for grading the quality of agricultural land*.

Desk assessment of Agricultural Land Classification

- 2.3.10 The study area has been subject to an intensive desk based assessment which has relied on the interpretation of soil mapping, topography and agro-climatic data, and the interactions between each factor. This resulted in an assessment of the likely soil textures, soil drainage status, landform, gradient, presence of or depth to poorly permeable soil layers and the extent to which crop growth may be limited by soil droughtiness.
- 2.3.11 A professional judgement has then been made of the predominant ALC grade which is likely for a soil with the given characteristics found in the climatic zone of the location within the area. The judgement is influenced by the surveyor's experience of previous surveys in the locality and on similar soil types. The resulting grade is that which is considered to be the most likely grade that would be found should a detailed site investigation be conducted although this does not mean in all cases that that grade will be found in practice.
- 2.3.12 Context land quality was ascertained using information derived from the provisional ALC maps of England and Wales produced by MAFF in the 1960s and 1970s⁵. These maps show the area to be provisionally mapped with approximately equal proportions of Grade 3 and Grade 4. These maps were originally published at a scale of 1:63,360 and are available at a scale of 1:250,000 in paper and digital formats. The main limitations of these provisional maps are that they are published on strategic scales only and according to a methodology which has since been revised twice. Therefore they cannot be used to definitively classify individual sites and hence further data analysis was conducted.

Agro-climatic data

- 2.3.13 The local agro-climatic data have been interpolated from the Meteorological Office's standard 5km grid point data set for four points within the study area and which are set out in Table 5. The data show the area to be warm with moderate rainfall with an average accumulated temperature of approximately 1,460 day°C and rainfall of 680mm per year. The average number of FCD is around 140 which is lower than the average for lowland England (150 days) and is considered to be favourable for providing opportunities for agricultural land working.
- 2.3.14 Fundamentally, climate does not in itself place any limitation upon land quality in this area but the interactions of climate with soil characteristics are important in determining the wetness and droughtiness limitations of the land.

Table 5: Local agro-climatic conditions

Climatic parameter	Northolt Aerodrome	Ruislip	Newyears Green	Ickenham
Altitude	35m	40m	45m	50m
Average annual rainfall	674mm	683mm	686mm	689mm
Accumulated temperature above 0°C	1,469 day°	1,463 day°	1,458 day°	1,452 day°
Field capacity days	138 days	142 days	143 days	143 days
Average moisture deficit, wheat	112mm	111mm	110mm	109mm

Climatic parameter	Northolt Aerodrome	Ruislip	Newyears Green	Ickenham
Average moisture deficit, potatoes	107mm	105mm	104mm	103mm

Site limitations

- 2.3.15 The assessment of site factors is primarily concerned with the way in which topography influences the use of agricultural machinery and hence the cropping potential of land. Gradient and microrelief, with complex changes of slope angle or direction over short distances, are not considered limiting in the South Ruislip to Ickenham study area.
- 2.3.16 Flooding is limited to the floodplains of the Yeading Brook and the River Pinn which cross the study area in the east and west respectively. Flood risk is determined by the extent, duration, frequency and timing of flooding events, however, there is insufficient data available to enable an accurate downgrading of agricultural land due to flooding in this area.

Soil limitations

- 2.3.17 The main soil properties which affect the cropping potential and management requirements of land are texture, structure, depth, stoniness and chemical fertility. Together they influence the functions of soil and affect the water availability for crops, drainage, workability and trafficability. There is considered to be one soil type within the South Ruislip to Ickenham section of the Proposed Scheme, with fine textured topsoil over clayey subsoil, developed over Tertiary clay geology and typically poorly drained.

Interactive limitations

- 2.3.18 The physical limitations which result from interactions between climate, site and soil are soil wetness, droughtiness and susceptibility to erosion. Each soil can be allocated a WC based on soil structure, evidence of waterlogging and the number of FCD; the topsoil texture then determines the ALC in accordance with Table 6 of the MAFF ALC guidelines (Figure 2).
- 2.3.19 The deep, fine loamy or clayey soil of WC IV mapped within the study area, with an average of around 140 FCD, will be limited by soil wetness to no better than Subgrade 3b.
- 2.3.20 No best and most versatile (BMV) land has been identified in this area. The limitations imposed on the area by climate, site and soil are such that all of the agricultural land is subgrade 3b quality.

3 Forestry

- 3.1.1 Data on the forestry resources in the study area has primarily been derived from the National Forest Inventory¹⁴. The area of land under forestry (i.e. trees and woodland) within 2km either side of the route centre line has been derived using a Geographic Information System (GIS), and is shown in Table 6.
- 3.1.2 Forestry resources are predominantly found in the north-west of the section in the Bayhurst Wood Countryside Park, Mad Bess Wood, Park Wood and the Ruislip Wood nature reserve as well as smaller pockets of woodland closer to the route, and Gutteridge Wood adjacent to the Northolt Aerodrome.

Table 6: Area of woodland within the study area and construction boundary

	Area of forestry land (ha)	Percentage of forestry land (%)
Forestry land in the study area	187.1	9% (forestry as a land use within the 4km-wide study area)
Total forestry land required for the construction and operation of the scheme	14.5	Approximately 9% of the land required for the construction of the Proposed Scheme is presently wooded

¹⁴ Forestry Commission (2001), *National Forest Inventory Woodland and Ancient Woodland (as updated)*.

4 Assessment of effects on holdings

- 4.1.1 The effects on holdings have been assessed through a series of interviews with farmers along the proposed route carried out between May 2012 and June 2013, according to the methodology set out in the Scope and Methodology Report and the Addendum (Volume 5: Appendix CT-001-000/2). Where interviews have not been possible the data has been estimated as described in the Scope and Methodology.
- 4.1.2 The nature of impacts considered comprises the temporary and permanent land required from the holding, the temporary and permanent severance of land, the permanent loss of key farm infrastructure and the imposition of disruptive effects (particularly noise and dust) on land uses and the holding's operations. These impacts occur primarily during the construction phase of the Proposed Scheme as set out in Table 7.

Table 7: Summary of assessment of effect on holdings

Holding reference, name and description	Construction effects	Residual effects post restoration of land required temporarily
CFA06/1 *	Land required: 5.1ha (21%). High impact	Land required: 5.1ha (21%). High impact
Priors Farm	Severance: none. Negligible impact.	Severance: none. Negligible impact.
24.2ha of arable and grassland	Disruptive effects: construction noise and dust controlled via the mitigation measures set out within the draft Code of Construction Practice ¹⁵ (CoCP). Negligible impact.	Infrastructure: no buildings or other farm infrastructure affected. Negligible impact.
Medium sensitivity to change		
	Overall temporary assessment: major/moderate effect due to the proportion of the holding required	Overall permanent assessment: major/moderate effect due to the proportion of the holding required
CFA06/2	Land required: 1.6ha (47%). High impact	Land required: 1.6ha (47%). High impact
Oak Farm	Severance: none. Negligible impact.	Severance: none. Negligible impact.
3.4ha smallholding, arable and cattle	Disruptive effects: construction noise and dust controlled via the mitigation measures set out within the draft CoCP. Negligible impact	Infrastructure: farm buildings demolished. High impact
Low sensitivity to change		
	Overall temporary assessment: moderate effect due to the proportion of the holding required	Overall permanent assessment: moderate effect due to the proportion of the holding required and building demolition but low sensitivity of holding
CFA06/3	Land required: 0.9ha (15%). Medium impact	Land required: 0.9ha (15%). Medium impact
Gatemead Farm	Severance: none. Negligible impact.	Severance: none. Negligible impact.
6.1ha grassland let to third party	Disruptive effects: construction noise and dust controlled via the mitigation	Infrastructure: dwelling demolished. High impact
Low sensitivity to change		

¹⁵ Volume 5: Appendix CT-003-000

Holding reference, name and description	Construction effects	Residual effects post restoration of land required temporarily
	measures set out within the draft CoCP. Negligible impact	
	Overall temporary assessment: minor effect	Overall permanent assessment: moderate adverse effect due to property demolition and the proportion of the holding required but low sensitivity of holding
CFAo6/4 * Cophall Farm 28.4ha grassland Medium sensitivity to change	Land required: 26.9ha (95%). High impact Severance: none. Negligible impact. Disruptive effects: construction noise and dust controlled via the mitigation measures set out within the draft CoCP. Negligible impact	Land required: 26.9ha (95%). High impact Severance: none. Negligible impact. Infrastructure: no buildings or other farm infrastructure affected. Negligible impact.
	Overall temporary assessment: major/moderate impact due to the proportion of the holding required	Overall permanent assessment: major/moderate impact due to the proportion of the holding required
CFAo6/5 Harvil Farm 16.2ha arable and grassland (contract farmed) Medium sensitivity to change	Land required: 7.1ha (44%). High impact Severance: parcel of woodland severed with no access, downgraded to medium impact. Disruptive effects: construction noise and dust controlled via the mitigation measures set out within the draft CoCP. Negligible impact	Land required: 6.7ha (41%). High impact. Severance: none. Negligible impact. Infrastructure: no buildings or other farm infrastructure affected. Negligible impact.
	Overall temporary assessment: major/moderate effect due to the proportion of the holding required	Overall permanent assessment: major/moderate effect due to the proportion of the holding required
CFAo6/6 * Brackenbury Farm 11.6ha of arable and grassland. Low sensitivity to change	Land required: 0.5ha (4%). Negligible impact Severance: none. Negligible impact. Disruptive effects: construction noise and dust controlled via the mitigation measures set out within the draft CoCP. Negligible impact.	Land required: 0.5ha (4%). Negligible impact Severance: none. Negligible impact. Infrastructure: no buildings or other farm infrastructure affected. Negligible impact.
	Overall temporary assessment: negligible	Overall permanent assessment: negligible
CFAo6/7 Un-named grassland 36.2 grassland Low sensitivity to change	Land required: 27.5ha (76%). High impact Severance: none. Negligible impact. Disruptive effects: construction noise and dust controlled via the mitigation measures set out within the draft CoCP. Negligible impact	Land required: 27.1ha (75%). High impact Severance: none. Negligible impact. Infrastructure: no buildings or other farm infrastructure affected. Negligible impact.
	Overall temporary assessment: moderate effect due to the proportion of the holding required but low sensitivity of holding	Overall permanent assessment: moderate effect due to the proportion of the holding required but low sensitivity of holding

Holding reference, name and description	Construction effects	Residual effects post restoration of land required temporarily
CFA06/8 *	Land required: 2.5ha (89%). High impact	Land required: 2.5ha (89%). High impact
New Years Green Farm	Severance: none. Negligible impact.	Severance: none. Negligible impact.
2.8ha grassland	Disruptive effects: construction noise and dust controlled via the mitigation measures set out within the draft CoCP.	Infrastructure: no buildings or other farm infrastructure affected. Negligible impact.
Low sensitivity to change	Negligible impact	
	Overall temporary assessment: moderate effect due to the proportion of the holding required but low sensitivity of holding	Overall permanent assessment: moderate effect due to the proportion of the holding required but low sensitivity of holding
CFA06/9 *	Land required: 2.8ha (98%). High impact	Land required: 2.8ha (98%). High impact
Land south of Newyears Green Lane	Severance: none. Negligible impact.	Severance: none. Negligible impact.
2.9ha grassland	Disruptive effects: construction noise and dust controlled via the mitigation measures set out within the draft CoCP.	Infrastructure: no buildings or other farm infrastructure affected. Negligible impact.
Low sensitivity to change	Negligible impact	
	Overall temporary assessment: moderate effect due to the proportion of the holding required but low sensitivity of holding	Overall permanent assessment: moderate effect due to the proportion of the holding required but low sensitivity of holding
CFA06/10 *	Land required: 19.4ha (77%). High impact	Land required: 19.4ha (77%). High impact
Rose Farm	Severance: land around northern perimeter of holding severed with no access. High impact.	Severance: land around northern perimeter of holding severed with no access. High impact.
25.2ha arable and grassland	Disruptive effects: construction noise and dust controlled via the mitigation measures set out within the draft CoCP.	Infrastructure: no buildings or other farm infrastructure affected. Negligible impact.
Medium sensitivity to change	Negligible impact.	
	Overall temporary assessment: major/moderate effect due to the proportion of the holding required and severance	Overall permanent assessment: major/moderate effect due to the proportion of the holding required and severance
CFA06/11 *	Land required: 2.8ha (23%). High impact	Land required: 2.8ha (23%). High impact
St Leonards Farm	Severance: land to north of holding severed. High impact.	Severance: land to north of holding severed. High impact.
12.3ha arable and grassland	Disruptive effects: construction noise and dust controlled via the mitigation measures set out within the draft CoCP.	Infrastructure: no buildings or other farm infrastructure affected. Negligible impact.
Medium sensitivity to change	Negligible impact.	
	Overall temporary assessment: major/moderate effect due to the proportion of the holding required and severance	Overall permanent assessment: major/moderate effect due to the proportion of the holding required and severance

* No Farm impact assessment interview conducted

5 References

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